

The opinion in support of the decision being entered today was **not** written for publication in a law journal and is **not** binding precedent of the Board.

Paper No. 23

UNITED STATES PATENT AND TRADEMARK OFFICE

---

BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

---

**Ex parte** HELMUT WELLNHOFER and REINHOLD DIRNBERGER

---

Appeal No. 1996-3356  
Application No. 08/235,668

---

On Brief

---

Before THOMAS, RUGGIERO, and DIXON, **Administrative Patent Judges**.

DIXON, **Administrative Patent Judge**.

**DECISION ON APPEAL**

This is a decision on appeal from the examiner's final rejection of claims 1-5, which are all of the claims pending in this application.

We REVERSE.

## **BACKGROUND**

Appellants' invention relates to a method for forming an actuating variable where various sensor measurements are determined at times which are at periods being equal to or a multiple of the output period of the actuating variable and forming the actuating variable in each output period from all of the individual components with values being valid in that output period. Not all data is updated or measured each output period and slower changing data is sampled at a slower rate than faster changing data.

### **Representative Claim**

Claim 1 is a representative of the claimed subject matter and read as follows:

1. In a method for forming an actuating variable to be output periodically by a control unit in output periods for controlling an apparatus, which includes reading output signals of at least two sensors into the control unit and ascertaining individual components of the actuating variable based on the output signals, the improvement which comprises:

reading in the sensor output signals and determining the individual components periodically at intervals of one read-in period or one determination period being equal to or a multiple of the output period of the actuating variable;

adjusting the read-in period of a sensor output signal to be dependent on a speed of variation of the sensor output signal;

adjusting the determination period of each individual component to be dependent on the read-in periods of the sensor output signals involved in each individual component; and

forming the actuating variable in each output period from all of the individual components with values being valid in that output period.

**Reference Relied Upon by the Examiner**

Hartford et al. (Hartford)	4,255,789	Mar. 10, 1981
----------------------------	-----------	---------------

Claims 1-5 stand rejected under 35 U.S.C. § 103 as being unpatentable over Hartford.

Rather than reiterate the conflicting viewpoints advanced by the Examiner and the appellants, we make reference to the briefs<sup>1</sup> and answer<sup>2</sup> for the details thereto.

**OPINION**

In reaching our decision in this appeal, we have given careful consideration to the appellants' specification and claims, to the applied prior art reference, and to the respective positions articulated by appellants and the examiner. As a consequence of our review, we make the determinations which follow.

Here, we note that the examiner has latched onto a number of teachings in Hartford that the sampling frequency or interval of each of the sensors of each individual control components may be independently controlled or adjusted by the computer control

---

<sup>1</sup> Appellants filed an appeal brief, December 18, 1995, (Paper No. 14). We will refer to this appeal brief as simply the brief. Appellants filed an reply brief, June 10, 1996, (Paper No. 16). We will refer to this appeal brief as simply the reply. Appellants filed a reply to the examiner's response to the Remand on October 24, 2001, (Paper No. 20). We will refer to this reply as the response.

<sup>2</sup> The Examiner responded to the brief with an Examiner's Answer mailed April 5, 1996, (Paper No. 15). We will refer to this examiner's answer as simply the answer. The reply brief was noted in a paper mailed July 30, 1996, (Paper No. 17) indicating that no further response was required. The Examiner responded to the first Remand with an letter mailed September 28, 2001, (Paper No. 19). We will refer to this examiner's letter as simply the letter. The Examiner responded to the second Remand with a Supplemental Examiner's Answer mailed January 14, 2003, (Paper No. 22). We will refer to this supplemental examiner's answer as simply the supplemental answer

and that the program can be easily changed. (See answer at page 4.) While we agree with the examiner that Hartford has a number of discrete teachings and statements, which in a vacuum may be viewed as teaching elements of the claimed invention, we find that Hartford alone does not teach or suggest the claimed invention.

Appellants admit that Hartford teaches that the read periods for sensors vary with engine speed, but that this is not the invention *per se*. (See response at page 2.) Appellants argue that it would not have been obvious to one of ordinary skill in the art at the time of the invention to have varied the read-in periods of the sensor signals in dependence on the speed variation of the sensor signals and that the examiner's conclusion thereof is based upon hindsight. (See response at page 2.) We agree with appellants. Appellants argue that the examiner's citations to Hartford do not lead to the conclusion that a computer program that reads in sensor signals that are required therefor in each output period, yet reads in other sensor signals only during every second or fourth output period. (See response at page 2 and brief at pages 11-12.) We agree with appellants that the examiner has not shown how and why it would have been obvious to one of ordinary skill in the art at the time of the invention to have had a different sampling frequency for different quantities being measured for use in the same calculation.

While the specific recitation of this quality of the disclosed invention is not explicitly recited in the express language of the independent claims, it is clear that the limitations as

a whole do encompass this subject matter. Independent claim 1 recites “reading in the sensor output signals and determining the individual components periodically at intervals of one read-in period or one determination period being equal to or a multiple of the output period of the actuating variable.” While it appears that appellants intended this limitation to reference that multiple determination periods are used at the same time for different individual components, the use of alternative language allows all of the periods to be the same. This is taught by Hartford. Hartford also teaches at column 312 that the read-in period also varies with or depends on the engine speed. Therefore, Hartford teaches sampling all of the components at the same frequency and that the frequency may vary.

With respect to the limitation “adjusting the determination period of each individual component to be dependent on the read-in periods of the sensor output signals involved in each individual component,” we find that Hartford does not teach or fairly suggest adjusting the determination period of each individual component to be dependent on the read-in periods of the sensor output signals involved in each individual component. While Hartford discloses the change of frequency of the read-in period as the engine speed increases, we find no teaching that the adjusting of the determination period would be made for each individual component based upon the read-in periods of the sensor output signals involved in each individual component rather than the engine speed. Therefore, Hartford teaches the use of each individual component for the sensor output at that time

rather than forming the actuating variable in each output period from all of the individual components with values being valid in that output period. Hartford uses all actual measured values for each formation of an actuating value rather than the use of prior measured values that are deemed valid at the time of forming the actuating value. While the language of the last step of claim 1 may be deemed to read on the use of measured values for each formation of an actuating value, we deem this step to be limited by the prior step of adjusting the determination period of each component. Therefore, we find that Hartford does not teach or fairly suggest this limitation.

Throughout the examiner's rejection the examiner refers to various distinct quotations in Hartford and generalizes a statement regarding independent sampling and computer control may be easily changed or modified as desired. (See answer at pages 3-5.) We disagree with the examiner's generalization concerning the sampling as discussed above and further in light of our finding that Hartford merely teaches at column 311 that a computer may be programmed and used. We do not agree with the examiner as the examiner suggests that a control law can be picked and then the program modified. We find that the examiner's analysis provides no convincing line of reasoning why it would have been obvious to one of ordinary skill in the art at the time of the invention to make any desired change in a control law to motivate the program to be changed. The examiner maintains that the "motivation is within practicing skills for practitioners at the

time the invention was made in the art.” (See supplemental answer at page 10.) We disagree with the examiner’s conclusion.

With respect to appellants’ argument that the sensors read in signals only during every second or fourth output periods, the examiner points out that the express limitation is not found in independent claim 1. We agree with the examiner, but do find the varied read-in period is adequately set forth in independent claim 1 and is not found in the prior art to Hartford. The examiner assumes that the limitation is set forth in the language of claim 1 and maintains that the teaching of Hartford regarding the independent control of sampling would have suggested or obviously implied the variation of the sampling to improve efficiency and it would have been within the practicing skills for the practitioner. (See answer at page 11.) Again, we disagree with the examiner and find that the examiner has not supported the conclusion with adequate teachings in Hartford. When determining obviousness, “the [E]xaminer can satisfy the burden of showing obviousness of the combination ‘only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references’.” **In re Lee**, 277 F.3d 1338, 1343, 61 USPQ2d 1430, 1434 (Fed. Cir. 2002), citing **In re Fritch**, 972 F.2d 1260, 1265, 23 USPQ2d 1780, 1783 (Fed. Cir. 1992). “Broad conclusory statements regarding the teaching of multiple references, standing alone, are not ‘evidence.’” **In re Dembiczak**, 175 F.3d 994, 999, 50 USPQ2d 1614, 1617.

Appeal No. 1996-3356  
Application No. 08/235,668

"Mere denials and conclusory statements, however, are not sufficient to establish a genuine issue of material fact." **Dembiczak**, 175 F.3d at 999, 50 USPQ2d at 1617, citing **McElmurry v. Arkansas Power & Light Co.**, 995 F.2d 1576, 1578, 27 USPQ2d 1129, 1131 (Fed. Cir. 1993). Therefore, the examiner has not set forth a ***prima facie*** case of obviousness, and we cannot sustain the rejection of independent claim 1 and its dependent claims.

Appeal No. 1996-3356  
Application No. 08/235,668

**REVERSED**

JAMES D. THOMAS  
Administrative Patent Judge

JOSEPH F. RUGGIERO  
Administrative Patent Judge

JOSEPH L. DIXON  
Administrative Patent Judge

)  
)  
)  
)  
)  
) BOARD OF PATENT  
) APPEALS  
) AND  
) INTERFERENCES  
)  
)  
)  
)  
)

jld/vsh

Appeal No. 1996-3356  
Application No. 08/235,668

LERNER & GREENBERG  
P.O. BOX 2480  
HOLLYWOOD , FL 33022-2480